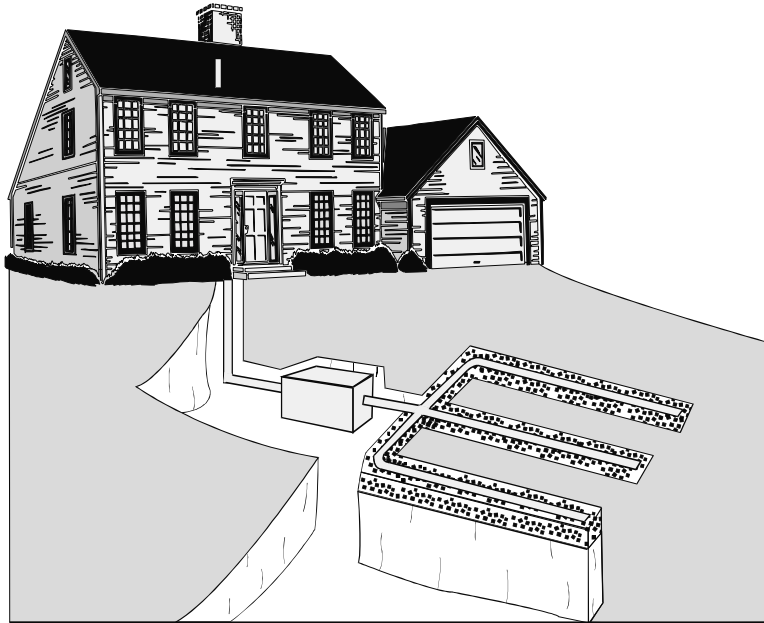


**Frequently Asked Questions and Guidance Regarding the Standards
for Individual Subsurface Sewage Disposal Systems
N.J.A.C. 7:9A-1 *et seq.***



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Introduction:

This document is a compilation of the most frequently asked questions (FAQ) regarding the Standards for Individual Subsurface Sewage Disposal Systems, N.J.A.C. 7:9A-1 et seq. The Department of Environmental Protection is providing these interpretations to provide guidance to the regulated community on the design, construction, installation, location, operation and maintenance of individual subsurface sewage disposal systems.

This document is simply a compilation of the interpretations that have been made over the past years. Please remember that the administrative authorities are responsible for administering the N.J.A.C. 7:9A permit program and are responsible for making the final determinations regarding these rules.

Subchapter 1 General Limitations:

Q. When can malfunctioning individual subsurface sewage disposal systems be altered even though the property to be served is within 100 feet of an available sanitary sewer line? When is a sanitary sewer line considered available?

A. In order for a sanitary sewer line to be considered "available" pursuant to the Standards, the property to be served must be within the sewer service area of the treatment plant to which the sewer line is connected. Additionally, connection to the sewer line must be feasible without installing a pump station, blasting bedrock, acquiring an easement or right-of-way to cross an adjoining property, or crossing a watercourse, railway, major highway or other significant obstacle.

The administrative authority cannot approve new construction, or alterations of individual subsurface sewage disposal systems that serve properties within 100 feet of an available sanitary sewer line. In the case of existing malfunctioning systems (as defined above), the property owner must abandon the individual subsurface sewage disposal system and connect to the sanitary sewer line. If the sewer line is not considered available, then construction or alterations of the individual subsurface sewage disposal system could be approved by the administrative authority. Repairs of existing individual subsurface sewage disposal systems could be approved without requiring connection to the sanitary sewer line.

When existing malfunctioning individual subsurface sewage disposal systems are located within 100 feet of an available sanitary sewer line within a sewerage authority upon which a sewer connection ban is imposed pursuant to N.J.A.C. 7:14A-22.17, connection into the sewer line may still be possible pursuant to the exemption criteria in N.J.A.C. 7:14A-22.22(a)5.

Q. What are the requirements for the approval of an individual subsurface sewage disposal system which is located on a different property than the facility served?

A. For new construction, when the individual subsurface sewage disposal system must be located on a separate property, a TWA from the Department would be required. In addition to the standard requirements for the submission of a TWA application, the following must be provided:

- 1) An executed and recorded property deed restriction or easement, for the property on which the septic system will be located, which clearly indicates that the property cannot be sold or developed in the future without first abandoning and removing the septic system; and
- 2) Municipal endorsement of the project as reflected by completion of form DWQ-003A. This ensures the Department that all municipal planning issues relative to right-of-ways, property easements, etc., have already been resolved.

Q. In addition to those activities explicitly listed in N.J.A.C. 7:9A-7.4(d), what activities has the Department identified as generating sanitary waste?

A. In addition to the activities identified in N.J.A.C. 7:9A-7.4(d), the Department has determined that the discharge from the following types of facilities constitutes sanitary sewage, and as such, can be approved by the administrative authority:

- beauty salons;
- dentist office (with self containing non discharging x-ray equipment); and
- kennels.

This list will be appended as additional facilities are identified by the Department.

Q. When is a NJPDES permit required for a sanitary septic system?

A. On May 5, 1997 NJDEP adopted amendments to the NJPDES regulations. Within this rule adoption, DWQ codified its long-standing policy concerning identification of community onsite subsurface sewage disposal systems. Although the rule no longer uses the term community onsite subsurface sewage disposal system, N.J.A.C. 7:14A-8.1(b)1iv clearly indicates that any one, or multiple subsurface disposal systems on a single property, with an aggregate sanitary wastewater design flow in excess of 2,000 gallons per day (determined in accordance with N.J.A.C. 7:9A-7.4) is subject to the discharge to ground water (DGW) provisions found in subchapter 7 of the NJPDES regulations. (The NJPDES regulations can be ordered from the West Group, St. Paul

Minn @ 1-800-808-WEST or from the Division of Water Quality's World Wide Web Site @ <http://www.state.nj.us/dep/dwq/dwqhome.htm>).

Q. What is the procedure for approving the connection of a temporary dwelling unit, to house an elderly family member, into an existing septic system?

A. In 1995, DWQ established a permit-by-rule authorization pursuant to the State Underground Injection Control (UIC) regulations which allowed for the temporary connection of a dwelling unit for elderly family members into an existing septic system. The conditions of this permit-by-rule and its applicability are presented in detail in the ECHO Permit-By-Rule distributed to all administrative authorities on April 19, 1995 (included with handouts).

Q. What is the rationale and guidelines for determining when a subsurface sewage disposal system or series of subsurface sewage disposal systems on a single property are subject to regulation under the NJPDES regulations?

A. On May 5, 1997 NJDEP adopted amendments to the NJPDES regulations. Within this rule adoption, DWQ codified its long-standing policy concerning identification of community onsite subsurface sewage disposal systems. Although the rule no longer uses the term community onsite subsurface sewage disposal system, N.J.A.C. 7:14A-8.1(b)1iv clearly indicates that any one, or multiple subsurface disposal systems on a single property, with an aggregate sanitary wastewater design flow in excess of 2,000 gallons per day (determined in accordance with N.J.A.C. 7:9A-7.4) is subject to the discharge to ground water (DGW) provisions found in subchapter 7 of the NJPDES regulations. (The NJPDES regulations can be ordered from the West Group, St. Paul Minn @ 1-800-808-WEST).

Q. Please elaborate the DEP's position regarding the number of dwelling units and septic systems allowed on a single property when the total daily design volume of sanitary sewage is 2,000 gpd or less.

A. There is no specific limit on the number of dwelling units and/or septic systems which may be located on a single property provided the aggregate design volume of sanitary sewage for the entire property does not exceed 2,000 gallons per day and each realty improvement is served by its own individual subsurface sewage disposal system. Based upon the minimum daily design volume for residential dwellings of 350 gpd, a single property cannot functionally contain more than 5 two-bedroom residential

dwelling units (realty improvements) without exceeding the 2,000 gpd threshold, which would subject the property to regulation through the NJPDES program.

Q. Is a Treatment Works Approval (TWA) required for any individual subsurface sewage disposal system serving more than one (1) realty improvement, even if the projected flow is less than 2,000 gallons per day?

A. An individual subsurface sewage disposal system, designed and approved after January 1, 1990, which serves more than one (1) realty improvement would require authorization from the Department through a TWA regardless of the daily design volume of sanitary sewage. A New Jersey Pollutant Discharge Elimination System (NJPDES) permit would be required if the aggregate daily design volume of sanitary sewage for the entire property exceeds 2,000 gallons per day. It should be noted, that as of May 5, 1997, a NJPDES permit is no longer required for five (5) or more realty improvements on a single property when the aggregate daily design sewage flow for the property is 2,000 gallons per day or less.

Q. Would two (2) dwellings on the same lot, each with their own septic system, need to consolidate into one septic system? Would such a septic system require a TWA?

A. No, two (2) or more realty improvements on a single property, each with a separate septic system, would not require a TWA from the Department. The use of existing individual subsurface sewage disposal systems may be continued without change provided that these systems were located, designed, constructed and installed in accordance with the regulations in effect at the time they were installed and provided that such systems are not malfunctioning. It should be noted, that if the aggregate sanitary sewage flow for the entire property is greater than 2,000 gallons per day, the discharge to ground water would be regulated pursuant to the New Jersey Pollutant Discharge Elimination System Rules, N.J.A.C. 7:14A.

Subchapter 2 Definitions:

Q. When should a storm sewer be considered a water course?

A. For the purposes of 7:9A, a storm sewer would only be considered a water course when it is both constructed below the water table into which the subject septic system is discharging and has open joints. A good source for information on the specifics of the construction of a storm sewer would be the municipal engineer.

Q. What is a lawn drain, storm drain or catch basin and what is the minimum separation distance to a disposal field?

A. The Standards do not define what constitutes a lawn drain, storm drain or catch basin, but does define what constitutes a water course. In the Department's original response to comments when the Standards were adopted on August 21, 1989, the Department explained that a storm sewer is considered a water course only when it is constructed below the water table and with open joints. Applying this logic, as long as components are entirely above the water table or constructed in a manner which precludes ground water seepage, they would not be considered water courses. However, with respect to catch basins, even when they don't qualify as water courses as described above, the Department recommends that consideration be given to their proximity to, and hydraulic impact upon, the functioning of the disposal field.

Subchapter 3 Administration:

Q. The Standards require that "special ordinances" must be submitted to the Department within ten (10) days of adoption. If the administrative authority does not submit such an ordinance to the Department within the specified time, is the ordinance valid?

A. The Standards do not limit the ability of municipalities to adopt "special ordinances." Although special ordinances are subject to the requirement of filing with the Department upon adoption or revision, the Standards do not require approval of special ordinances by the Department. As such, the Department has no authority to invalidate the ordinance in the absence of being filed. This matter was discussed in the Department's original response to comments when the Standards were adopted on August 21, 1989. It must be understood that it is not the Department's statutory function to approve or disapprove special ordinances adopted pursuant to Article 7, Title 58 of the revised statutes of New Jersey, but rather serve in an advisory capacity in these matters.

Q. Are individual subsurface sewage disposal system designs approved prior to January 1, 1990 still valid?

A. Any such design approval which was not installed and certified by December 31, 1996 has subsequently expired.

N.J.A.C. 7:9A-3.2(b) established a maximum five (5) year life of individual subsurface sewage disposal system design and/or construction approvals after the January 1, 1990 operative date of the Standards, provided the life of such permits were not limited by a local ordinance. Individual subsurface sewage disposal system design and/or construction approvals which were valid on, or after, January 1, 1989 had been extended through December 31, 1996 by the Permit Extension Act of 1994. Therefore, all outstanding individual subsurface sewage disposal system design and/or construction approvals which had been issued prior to January 1, 1990, must have been installed and certified prior to December 31, 1996.

The validity of individual subsurface sewage disposal system design and/or construction approvals issued in conformance with the current Standards after January 1, 1990 would only be limited by local ordinance, or by a specific expiration date on the approval itself. Extension of such approvals is at the sole discretion of the issuing authority.

Q. Under what conditions can a holding tank be approved?

A. The administrative authority can approve the use of a holding tank, as a temporary means of waste disposal, for a period of up to 180 days while an existing individual subsurface sewage disposal system is undergoing an alteration or repair. Use of a holding tank as a permanent means of sewage disposal for sites with malfunctioning individual subsurface sewage disposal systems which cannot be rehabilitated pursuant to N.J.A.C. 7:9A-3.3, would require a treatment works approval (TWA) from the Department. Before the Department would consider issuing a TWA for a permanent holding tank, it must be demonstrated to the satisfaction of both the administrative authority and the Department that the provisions of N.J.A.C. 7:9A-3.4(d) have been met. Applications for a TWA for a permanent holding tank should be submitted to the Department's Division of Water Quality, Municipal Finance and Construction Element, Bureau of Administration and Management, P.O. Box 029, Trenton, NJ 08625. The interim use of a holding tank could only be approved by the Department under the following condition:

- 1) Simultaneous or subsequent to the issuance of a Stage II "dry/construct only" treatment works approval by the Department pursuant to N.J.A.C. 7:14A-22.9(b)2, for projects located in sewer ban areas; or
- 2) To serve a proposed project that is located in a area not presently served by sanitary sewers **and** where a treatment works approval has been issued and a construction contract awarded which contains a scheduled completion date for the construction of the downstream facilities (i.e. sanitary sewer and treatment plants) necessary for the elimination of the holding tank.

For more details on the use of sewage holding tanks, see section 22.13 of the Rules and Regulations Concerning Treatment Works Approvals, Sewer Bans, Sewer Ban Exemptions, at N.J.A.C. 7:14A-22.

Q. Under what circumstances is a treatment works approval from the Department required?

A. The Department reviews Treatment Works Approval (TWA) applications for proposed individual subsurface sewage disposal systems which meet the criteria of N.J.A.C. 7:9A-3.9(b). Since the adoption of the Standards, TWA applications have been reviewed for the following scenarios:

- A) Multiple connections to a new individual subsurface sewage disposal system, or increase in the number of connections to an existing individual subsurface sewage disposal system, where the daily design volume of sanitary sewage, calculated in accordance with N.J.A.C. 7:9A-7.4, is 2,000 GPD or less.
- B) When the location of an individual subsurface sewage disposal system is on a property different than that of the facility which it serves.
- C) When an alternative method of determining design flow associated with a NJPDES-DGW "flow only" permit is used.
- D) When encroachment upon prescribed distance setbacks between disposal fields and other disposal fields on adjacent properties, property lines or potable wells is otherwise unavoidable.
- E) When alternative methods other than those prescribed in N.J.A.C. 7:9A-5.8 for identifying zones of saturation are used.
- F) When a soil replacement disposal field installation is located in an area which exhibits an artesian zone of saturation as identified pursuant to N.J.A.C. 7:9A-5.9.
- G) When a disposal field is located in an area where the regional zone of saturation is less than 2 feet below pre-existing natural ground surface.
- H) When the level of infiltration is located between 1 foot below and 1 foot above the finished ground elevation for soil replacement fill-enclosed and mounded soil replacement disposal field installations.
- I) When individual subsurface sewage disposal systems are required to provide advanced wastewater treatment (e.g. Ruck system installed in Pinelands)

- J) When experimental systems (e.g. solar assisted evapotranspiration greenhouse systems) are utilized.
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Q. When would a New Jersey Pollutant Discharge Elimination System (NJPDES) permit be required for an individual subsurface sewage disposal system?

A. There are two cases when a NJPDES permit is required:

- 1) The system discharges in excess of 2,000 gallons per day of sanitary sewage; and
- 2) When non-sanitary or industrial wastes are discharged.

On May 5, 1997 NJDEP adopted amendments to the NJPDES regulations. Within this rule adoption, DWQ codified its long-standing policy concerning identification of community onsite subsurface sewage disposal systems. Although the rule no longer uses the term community onsite subsurface sewage disposal system, N.J.A.C. 7:14A-8.1(b)1iv clearly indicates that any one, or multiple subsurface disposal systems on a single property, with an aggregate sanitary wastewater design flow in excess of 2,000 gallons per day (determined in accordance with N.J.A.C. 7:9A-7.4) is subject to the discharge to ground water (DGW) provisions found in subchapter 7 of the NJPDES regulations. (The NJPDES regulations can be ordered from the West Group, St. Paul Minn @ 1-800-808-WEST or on the Division of Water Quality's World Wide Web Site @ <http://www.state.nj.us/dep/dwq/dwqhome.htm>).

Facilities which discharge non-sanitary or industrial wastes to an individual subsurface sewage disposal system are not subject to regulation pursuant to the Standards, but would be regulated pursuant to the NJPDES regulations, N.J.A.C. 7:14A.

Q. Do the Standards authorize the use of soil logs, percolation tests and determinations of estimated depth to seasonal high water table as the basis for design of individual subsurface sewage disposal systems after the December 31, 1994 expiration date in the Standards?

A. No. Soil logs, percolation tests and determinations of seasonal high water table made prior to January 1, 1990 are no longer valid, regardless of how they were conducted.

The Department has taken extensive measures in providing a fair and reasonable period of time for using prior tests in septic systems designed pursuant to the current standards. On two (2) occasions, the Department has extended the deadline for using prior tests. The first occasion was as a result of comments received during the comment period of the August 1, 1988 rule proposal. At that time, the Department took

into consideration the comments received and agreed to extend the deadline for using prior tests from one year to two years after the January 1, 1990 operative date of the Standards. On the second occasion, the Department convened the Statutory Advisory Committee pursuant to N.J.S.A. 58:11-35, and upon its recommendation, extended the deadline once again from two years to five years from the January 1, 1990 operative date of the Standards.

Throughout this entire process, the Department has more than satisfied its obligation to consider and reasonably account for the time and resources expended by those individuals who performed prior tests according to the repealed rules but were unable to proceed with design and approval for a variety of reasons. The December 31, 1994 deadline date for using prior tests as the basis of design for individual subsurface sewage disposal systems provided the regulated community a smooth transition time for project active prior to the adoption of the current Standards by considering both laws and regulations associated with development of land on septic systems and the comments and recommendations of the regulated community. In light of this, the Department will not consider or entertain requests for variance from N.J.A.C. 7:9A-3.16 for any project.

It should be noted, that pit-bailing tests, basin flooding tests, tube permeameter tests, piezometer tests and soil permeability class rating tests conducted prior to January 1, 1990 through the repealed alternate design program or supplementary through municipal ordinances can be incorporated into designs reviewed pursuant to the current Standards, provided that the administrative authority is satisfied that these tests conform to the procedures currently outlined in the Standards. These pre-1990 tests could be allowed since N.J.A.C. 7:9A-3.16 only addresses soil logs, percolation tests and determinations of estimated depth to seasonal high water table.

Q. What constitutes a repair to an individual subsurface sewage disposal system?

A. The Standards define a repair to an existing individual subsurface sewage disposal system as the replacement of a part with a similar part in a manner that will restore, preserve and not change the original location, design, construction and installation, size, capacity, type, or number of components of the system.

Q. What constitutes an alteration to an existing individual subsurface sewage disposal system? When would an alteration require the involvement of a professional engineer? Do alterations to existing individual subsurface sewage disposal systems have to strictly conform to the Standards?

A. The Standards define an alteration as any change in the physical configuration of an existing individual subsurface sewage disposal system or any of its component parts,

including replacement, modification, addition or removal of system components such that there will be a change in the location, design, construction, installation, size, capacity, type or number of one or more components.

A licensed professional engineer would be required for an alteration when the alteration involves the practice of professional engineering. The rules and regulations governing the practice of engineering would require the involvement of a licensed professional engineer if the alteration changes the scope of the design of the individual subsurface sewage disposal system. The Standards give the administrative authority latitude in determining whether an alteration involves the practice of professional engineering. The Department urges the administrative authority to use its judgment and discretion in determining when alterations require the involvement of a licensed professional engineer.

Alterations to existing individual subsurface sewage disposal systems do not have to strictly conform to the Standards. The Standards only require that alterations which involve the practice of professional engineering be performed in conformance with plans and specifications signed and sealed by a licensed professional engineer, and that the alterations are made in such a way that those components of the system altered are in conformance with the requirements of the Standards, or are closer to being in conformance with the requirements of the Standards than the original components prior to the alteration. The above referenced provisions provide the administrative authority with leeway and discretion in approving alterations to existing individual subsurface sewage disposal systems. Whenever possible, the Department urges the administrative authority to use the authority provided to it by the Standards to approve alterations to existing individual subsurface sewage disposal systems.

Q. Do alterations to existing malfunctioning individual subsurface sewage disposal systems have to conform to the Standards? Is the use of an air injection system, such as *Terralift*, an acceptable means of remediating a malfunctioning septic system?

A. Alterations to existing individual subsurface sewage disposal systems which are malfunctioning fall under the provisions of alterations stated above, with the added requirement that alterations to malfunctioning systems must eliminate the cause of the malfunction and, with proper operation and maintenance, prevent any future malfunctions?

The Department views the use of *Terralift*, which is a device which injects compressed air into the ground through a probe in order to create artificial fissures to promote infiltration, as a temporary remedy to a malfunctioning or poorly operating septic system. The Department views the use of *Terralift* as a repair, and as such the involvement of a licensed professional engineer is not required. The *Terralift* unit itself cannot be placed within the confines of the boundaries of the disposal field in order to prevent the weight of the unit from damaging any components of the field. The injection

of any artificial materials, such as polystyrene pellets or glass beads, to keep the artificially created fissure open is not endorsed by the Department due to the concern of the introduction of such material into the subsurface environment. The Department views the use of the *Terralift* system as a temporary, rather than a permanent, solution and recommends that different conventional corrective measures should be relied upon.

Therefore, the administrative authority can approve a repair to an existing malfunctioning individual subsurface sewage disposal system that proposes to use the *Terralift* system, or other similar air injection devices.

Q. Would the expansion or change in use of a facility require that the individual subsurface sewage disposal system be brought into conformance with the current Standards? Would the conversion from seasonal to year-round use of a residential dwelling be considered a change in use?

A. An expansion or change in use of a facility served by an existing individual subsurface sewage disposal system does not automatically require that the individual subsurface sewage disposal system be brought into conformance with the Standards. If the expansion or change in use of the facility does not result in an increase in the daily design volume of sanitary sewage (determined as prescribed at N.J.A.C. 7:9A-7.4) then use of the existing individual subsurface sewage disposal system could continue provided the existing system is not malfunctioning. If an expansion or change in use results in an increase in the daily design volume of sanitary sewage generated, the existing system could continue to be used provided the following conditions are established to the satisfaction of the administrative authority:

- 1) The location, design, construction, installation and operation of the meets the requirements of the current Standards;
- 2) The expansion or change in use does not exceed the design capacity of the existing system; and
- 3) The existing system is not malfunctioning, or show signs of malfunctions (as prescribed in N.J.A.C. 7:9A-3.4).

If the expansion or change in use results in an increase in the daily design volume of sanitary sewage beyond the design capacity of the existing system, a new individual subsurface sewage disposal system, designed in strict conformance with the Standards, would be required.

For existing residential dwellings which are presently used on a seasonal basis, if records indicate that the septic system was specifically approved for seasonal use only (prior to 1963, Chapter 199 did allow smaller design flows for cottages with seasonal occupancy), then the proposed change from seasonal to year-round occupation would be considered a change in use which results in an increase in the daily design volume

of sanitary sewage and all aspects of the septic system location, design, construction and installation must be in strict conformance with the Standards.

In the absence of such records, or if records indicate that the existing septic system was approved based upon design flow criteria for year-round occupation (i.e. single family dwellings) then the change from seasonal to year-round use, with no associated expansion in the number of bedrooms, would not be subject to the provisions of N.J.A.C. 7:9A-3.3(c). As such, the existing septic system could continue to serve the existing dwelling provided that the system is not malfunctioning.

Q. What is the impact of the expiration of the Permit Extension Act upon pre-1990 approvals?

A. N.J.A.C. 7:9A-3.2(b) established a maximum five (5) year life for individual subsurface sewage disposal system design and/or construction approvals after the January 1, 1990 operative date of the Standards, provided the life of such permits were not limited by a local ordinance. Individual subsurface sewage disposal system design and/or construction approvals which were valid on, or after, January 1, 1989 had been extended through December 31, 1996 by the Permit Extension Act of 1994. Therefore, all outstanding individual subsurface sewage disposal system design and/or construction approvals which had been issued prior to January 1, 1990, must have been installed and certified prior to December 31, 1996. Any such design approval which was not installed and certified by December 31, 1996 has subsequently expired.

Q. What constitutes a repair or an alteration and when is a licensed professional engineer required for an alteration?

A. The guidance the Department has provided to the administrative authorities defines a repair to an existing individual subsurface sewage disposal system as the replacement of a part with a similar part in a manner that will restore, preserve and not change the original location, design, construction, installation, size, capacity, type, or number of components of the system. While an alteration is any change in the physical configuration of an existing individual subsurface sewage disposal system or any of its component parts, including replacement, modification, addition or removal of system components such that there will be a change in the location, design, construction, installation, size, capacity, type or number of one or more components.

A licensed professional engineer would be required for an alteration when the alteration involves the practice of professional engineering. The rules and regulations governing the practice of engineering would require the involvement of a licensed professional engineer if the alteration changes the scope of the design of the individual subsurface

sewage disposal system. The Standards give the administrative authority latitude in determining whether an alteration involves the practice of professional engineering. The Department urges the administrative authority to use its judgment and discretion in determining when alterations require the involvement of a licensed professional engineer.

Alterations to existing individual subsurface sewage disposal systems do not have to strictly conform to the Standards. The Standards only require that alterations which involve the practice of professional engineering be performed in conformance with plans and specifications signed and sealed by a licensed professional engineer, and that the alterations are made in such a way that those components of the system altered are in conformance with the requirements of the Standards, or are closer to being in conformance with the requirements of the Standards than the original components prior to the alteration. The above referenced provisions provide the administrative authority with leeway and discretion in approving alterations to existing individual subsurface sewage disposal systems.

Q. For the preparation of plans for a mounded or mounded-soil replacement disposal field installation, who is responsible for the preparation of the survey information?

A. 7:9A-3.5(c)2 specifically references section 7 of the State Board of Professional Engineers and Land Surveyors Administrative Rules and Procedures, N.J.A.C. 13:40 as the requirements under which site plans pursuant to 7:9A-3.5 are to be prepared. Specifically under section 7.2, the professional engineer is authorized to transpose survey information to a site plan if duly noted as to the date of the survey, by whom, and for whom.

Q. How can the processing of Treatment Works Approval (TWA) applications for alternate determinations of depth to seasonal high water table be facilitated?

A. For alternative determinations of estimated depth to seasonal high water table, the Department requires the following information to be submitted in support of the TWA application:

- 1) Identification of the elevation of the estimated depth to seasonal high water table; and
- 2) Soil morphological explanation of why the mottling encountered does not represent the estimated depth to seasonal high water table.

The Department can commit to an expedited review of the TWA application if the test pits used to provide the above information, have been excavated in the presence of and evaluated by an individual with the following qualifications:

- ♦ Registered as a Professional Soil Scientist with the American Registry of Certified Professionals in Agronomy, Crops and Soils (ARCPACS); or
- ♦ Member of the New Jersey Association of Professional Soil Scientists; or
- ♦ Having 4 years of professional experience in soil classification, mapping and interpretations and an undergraduate degree from an accredited college or university with 30 semester hours or the equivalent in earth sciences with 15 of such semester hours in soil science; or
- ♦ Having 2 years of professional experience in soil classification, mapping and interpretations with a graduate degree from an accredited college or university with 30 semester hours or the equivalent in earth sciences with 15 of such semester hours in soil science.

If the alternative site evaluation is not performed by an individual with the above qualifications, NJDEP reserves the right to require the excavation of supplemental soil profile pits (at the applicants expense) during the TWA review period to allow for field verification by NJDEP staff. If such a determination must be made by the NJDEP, an expedited review of the TWA application can not be provided.

Q. Why can't local Health Department's approve the temporary use of a holding tank, for new construction (i.e. sample homes etc.), until a sewer is installed?

A. The administrative authority can approve the use of a holding tank, as a temporary means of waste disposal, for a period of up to 180 days while an existing individual subsurface sewage disposal system is undergoing an alteration or repair. Use of a holding tank as a permanent means of sewage disposal for sites with malfunctioning individual subsurface sewage disposal systems which cannot be rehabilitated pursuant to N.J.A.C. 7:9A-3.3, would require a treatment works approval (TWA) from the Department. Before the Department would consider issuing a TWA for a permanent holding tank, it must be demonstrated to the satisfaction of both the administrative authority and the Department that the provisions of N.J.A.C. 7:9A-3.4(d) have been met. Applications for a TWA for a permanent holding tank should be submitted to the Department's Division of Water Quality, Bureau of Administration and Management, P.O. Box 029, Trenton, NJ 08625. The interim use of a holding tank could only be approved by the Department under the following condition:

- 1) Simultaneous or subsequent to the issuance of a Stage II "dry/construct only" treatment works approval by the Department pursuant to N.J.A.C. 7:14A-22.9(b)2, for projects located in sewer ban areas; or

- 2) To serve a proposed project that is located in a area not presently served by sanitary sewers and where a treatment works approval has been issued and a construction contract awarded which contains a scheduled completion date for the construction of the downstream facilities (i.e. sanitary sewer and treatment plants) necessary for the elimination of the holding tank.

For more details on the use of sewage holding tanks, see section 22.13 of the Rules and Regulations Concerning Treatment Works Approvals, Sewer Bans, Sewer Ban Exemptions, at N.J.A.C. 7:14A-22.

Q. Status of pre-1990 soil logs and permeability testing which may have been conducted in conformance with the methodologies of the proposed regulations which were subsequently adopted?

A. Soil logs, percolation tests and determinations of seasonal high water table made prior to January 1, 1990 are no longer valid. The Department has taken extensive measures in providing a fair and reasonable period of time for using prior tests in septic systems designed pursuant to the current standards. On two (2) occasions, the Department has extended the deadline for using prior tests. The first occasion was as a result of comments received during the comment period of the August 1, 1988 rule proposal. At that time, the Department took into consideration the comments received and agreed to extend the deadline for using prior tests from one year to two years after the January 1, 1990 operative date of the Standards. On the second occasion, the Department convened the Statutory Advisory Committee pursuant to N.J.S.A. 58:11-35, and upon its recommendation, extended the deadline once again from two years to five years from the January 1, 1990 operative date of the Standards.

Throughout this entire process, the Department has more than satisfied its obligation to consider and reasonably account for the time and resources expended by those individuals who performed prior tests according to the repealed rules but were unable to proceed with design and approval for a variety of reasons. The December 31, 1994 deadline date for using prior tests as the basis of design for individual subsurface sewage disposal systems provided the regulated community a smooth transition time for project active prior to the adoption of the current Standards by considering both laws and regulations associated with development of land on septic systems and the comments and recommendations of the regulated community. In light of this, the Department will not consider or entertain requests for variance from N.J.A.C. 7:9A-3.16 for any project.

It should be noted, that pit-bailing tests, basin flooding tests, tube permeameter tests, piezometer tests and soil permeability class rating tests conducted prior to January 1, 1990 through the repealed alternate design program or supplementary pursuant to

municipal ordinances, can be incorporated into designs reviewed pursuant to the current Standards, provided that the administrative authority is satisfied that all aspects of these tests conform to the procedures currently outlined in the Standards. These pre-1990 tests could be allowed since N.J.A.C. 7:9A-3.16 only addresses soil logs, percolation tests and determinations of estimated depth to seasonal high water table.

Q. Can the administrative authority issue a repair permit, or if necessary an alteration permit, to an existing facility with a malfunctioning system, where the daily design volume of sanitary sewage exceeds 2,000 gallons per day (gpd)? The facility is subject to regulation under the New Jersey Pollutant Discharge Elimination Program (NJPDES), and has been directed to apply for a NJPDES.

A. The administrative authority can issue a permit for a repair (replacement in kind) of a malfunctioning individual subsurface sewage disposal system where the daily design volume of sanitary sewage is greater than 2,000 gpd. An alteration to an individual subsurface sewage disposal system with a daily design volume of sanitary sewage greater than 2,000 gpd would require prior written approval from the Department, pursuant to N.J.A.C. 7:9A-3.3(f).

Q. The Department has stated that soil log conditions which are greater than 15 feet from a disposal field are not limiting to a septic design. How can conditions be limiting in one area, yet not compromise adjacent areas?

A. This statement is not entirely accurate. Site investigation through the excavation of soil profile pits and soil borings accomplishes 2 objectives. Characterization of site conditions immediate to the area of the disposal field for the purpose of identifying soil limiting conditions for design, and overall site assessment to infer regional soil, geologic and hydrogeologic conditions. Site characteristics identified within 15 feet of the disposal field provide reasonably representative field data for system design while allowing site evaluators and designers latitude in locating profile pits during initial field investigations. As per section 7:9A-3.5(c)2ix, soil profile pits, soil borings and permeability tests located beyond 15 foot boundary of the disposal field still need to be reported since this data may give indications to regional conditions which may effect system performance. Examples could be orientation of bedrock as it relates to downslope outcrop or the prevalence of artesian ground water conditions. This data may not preclude the system design, but could provide a reasonable basis to assess the site in greater detail.

Q. Please elaborate the DEP's requirements concerning what would be considered an acceptable ECHO (Elderly Cottage Housing Opportunity) unit.

A. According to the ECHO Permit-by-Rule the Department issued to all the administrative authorities in April 1995, ECHO units must be temporary and its use is limited to the duration of the occupancy of the original user(s) while meeting the following requirements:

- (1) Shall be federally or state labeled pursuant to the National Manufactured Home Construction and Safety Standards Act of 1974 or N.J.A.C. 5:23-4A, whichever is applicable;
- (2) Shall not exceed 720 square feet of gross floor area;
- (3) Shall not have more than two (2) bedrooms;
- (4) Shall not have more than one (1) bathroom;
- (5) Shall be equipped with low flow plumbing fixtures as required by the Plumbing Subcode of the Uniform Construction Code; and
- (6) Shall not be equipped with a garbage grinder.

Additionally, it must be demonstrated to the satisfaction of the administrative authority that the existing system is not malfunctioning and is capable of handling the additional volume of wastewater.

Q. Would the expansion or change in use of a facility require that the individual subsurface sewage disposal system be brought into conformance with the current Standards?

A. An expansion or change in use of a facility served by an existing individual subsurface sewage disposal system does not automatically require that the individual subsurface sewage disposal system be brought into conformance with the Standards. If the expansion or change in use of the facility does not result in an increase in the daily design volume of sanitary sewage (determined as prescribed at N.J.A.C. 7:9A-7.4) then use of the existing individual subsurface sewage disposal system could continue provided the existing system is not malfunctioning. If an expansion or change in use results in an increase in the daily design volume of sanitary sewage generated, the existing system could continue to be used provided the following conditions are established to the satisfaction of the administrative authority:

- (1) The location, design, construction, installation and operation of the meets the requirements of the current Standards;
- (2) The expansion or change in use does not exceed the design capacity of the existing system; and
- (3) The existing system is not malfunctioning, or show signs of malfunctions (as prescribed in N.J.A.C. 7:9A-3.4).

If the expansion or change in use results in an increase in the daily design volume of sanitary sewage beyond the design capacity of the existing system, a new individual subsurface sewage disposal system, designed in strict conformance with the Standards, would be required.

For existing residential dwellings which are presently used on a seasonal basis, if records indicate that the septic system was specifically approved for seasonal use only (prior to 1963, Chapter 199 did allow smaller design flows for cottages with seasonal occupancy), then the proposed change from seasonal to year-round occupation would be considered a change in use which results in an increase in the daily design volume of sanitary sewage and all aspects of the septic system location, design, construction and installation must be in strict conformance with the Standards.

In the absence of such records, or if records indicate that the existing septic system was approved based upon design flow criteria for year-round occupation (i.e. single family dwellings) then the change from seasonal to year-round use, with no associated expansion in the number of bedrooms, would not be subject to the provisions of N.J.A.C. 7:9A-3.3(c). As such, the existing septic system could continue to serve the existing dwelling provided that the system is not malfunctioning.

Q. Can the administrative authority issue a final certificate of compliance for a pre-1990 septic system design approval which was constructed, but not certified, prior to January 1, 1997?

A. Designs for individual subsurface sewage disposal systems approved by the administrative authority prior to January 1, 1990 could have been installed and certified pursuant to the rules in effect at the time of approval. The Standards established a maximum 5 year life of such approvals, or until December 31, 1994. Additionally, the permit extension act extended the life of these permits until December 31, 1996. Therefore, if the system was constructed, but not certified, by December 31, 1996, the system would have to be altered to conform to the current standards prior to the issuance of a certificate of compliance by the administrative authority. Section 3.2(b) of the Standards specifically indicates both approval and certification.

Q. Is the use of an air injection system, such as *Terralift*, an acceptable means of remediating a malfunctioning septic system?

A. The Department views the use of *Terralift*, which is a device which injects compressed air into the ground through a probe in order to create artificial fissures to promote infiltration, as a temporary remedy to a malfunctioning or poorly operating septic system. The Department views the use of *Terralift* as a repair, and as such the involvement of a licensed professional engineer is not required. The *Terralift* unit itself cannot be placed within the confines of the boundaries of the disposal field in order to prevent the weight of the unit from damaging any components of the field. The injection of any artificial materials, such as polystyrene pellets or glass beads, to keep the artificially created fissure open is not endorsed by the Department since effectively this allows for the persistence of coarse textured flow conditions. The Department does not endorse repeated application of *Terralift* technology to continually malfunctioning systems. In these circumstances more conventional engineering remedial alternatives would need to be pursued.

Therefore, the administrative authority can approve a repair to an existing malfunctioning individual subsurface sewage disposal system that proposes to use the *Terralift* system, or other similar air injection devices.

Q. Can the Department provide guidance concerning the interpretation of when water levels in inspection ports indicate a system malfunction?

A. Recently, many inquiries have been received regarding the interpretation of water levels in inspection ports. It should be noted that neither section 3.4, nor repealed section 12.2, ever associated water levels in stand pipes to system malfunction. The Department doesn't consider a system to be malfunctioning unless the administrative criteria at N.J.A.C. 7:9A-3.4 are identified. While the Department is not advocating ignoring water levels in inspection ports, it doesn't recommend concluding that observed water levels above the invert elevation of the laterals are a manifestation of failure. Obviously, prolonged observations of water levels in the inspection ports above the invert elevation of the laterals are an indication of impeded drainage and should mandate increased monitoring and inspection and reduced water use by the homeowner. But, unless the criteria for malfunctioning systems in 3.4 are observed, the Department wouldn't recommend active remediation of the system.

Q. Is a TWA required for an individual subsurface sewage disposal system design which incorporates a sewage ejector pump prior to the septic tank?

A. Although the Standards at N.J.A.C. 7:9A-3.9(b)5 state that a TWA is required when the sewage will not flow by gravity from the facility served to the septic tank, the more recently promulgated Treatment Works Approval, Sewer Ban, Sewer Ban Exemption Regulations, N.J.A.C. 7:14A-22.4(a)2, do not require a TWA for the use of a sewage ejector pump and as such supercedes N.J.A.C. 7:9A-3.9(b)5. The Department will rectify this conflict in the regulations the next time the Standards are amended.

Q. What is the role of the administrative authority in the TWA process?

A. As with all individual subsurface sewage disposal system designs, the administrative authority reviews the design for conformance with the Standards for Individual Subsurface Sewage Disposal Systems (Standards), N.J.A.C. 7:9A-1 et seq. The administrative authority should identify all aspects of the individual subsurface sewage disposal system design which do not conform to the Standards. When a TWA application is being submitted, the administrative authority is needed to endorse the Department's Engineer's Report, Form DWQ-006A. The Department relies upon the administrative authority to use it's judgement in endorsing the DWQ-006A Form, since the Department regards an endorsed DWQ-006A Form as the administrative authority's acceptance of the concept of the proposed project. It should be noted that when in the judgement of the administrative authority, no administrative or technical justification exists for pursuing a TWA, the administrative authority is under no obligation to endorse a DWQ-006A Form. Absence of such endorsement in a TWA application will serve as a signal to the Department not to entertain the application.

Q. Can the Department provide advice concerning the remediation of malfunctioning septic system serving a laundromat on a site reported as having good soil conditions? Does the Department have any knowledge concerning the development of a "grey slimy suspension" from the discharge of waste from a laundromat?

A. Assuming that an adequate zone of treatment and zone of disposal exist, the Department would advise that the following conditions be investigated:

1. Is the system being hydraulically overloaded. Does the discharge rate exceed the daily design flow for the facility; and
2. Investigate/excavate the disposal field for carry over of solids, greases, fats, etc. If excessive solids carry over is discovered in the disposal field, consider the following:
 - a) installation of a grease trap, even though greases/fats aren't expected for the type of facility involved; or

- b) installation of an additional septic tank in series, or providing septic tanks with multiple compartments, in order to provide additional retention time for the settling of any solids prior to discharge to the disposal field.

The Department does not have any specific knowledge concerning the development of a "grey slimy suspension" from the discharge of waste from a laundromat. The Department would recommend the addition of a grease trap, or additional septic tanks, in order to allow increased retention time for the settling of any solids in the laundromat wastes.

Q. Is a Treatment Works Approval (TWA) required for any individual subsurface sewage disposal system serving more than one (1) realty improvement, even if the projected flow is less than 2,000 gallons per day?

A. An individual subsurface sewage disposal system, designed and approved after January 1, 1990, which serves more than one (1) realty improvement would require authorization from the Department through a TWA regardless of the daily design volume of sanitary sewage. A New Jersey Pollutant Discharge Elimination System (NJPDES) permit would be required if the aggregate daily design volume of sanitary sewage for the entire property exceeds 2,000 gallons per day. It should be noted, that as of May 5, 1997, a NJPDES permit is no longer required for five (5) or more realty improvements on a single property when the aggregate daily design sewage flow for the property is 2,000 gallons per day or less.

Q. Who has jurisdiction to determine whether a subdivision consists of 50 or more Realty Improvements?

A. The Realty Improvement Sewerage and Facilities Act, at N.J.S.A. 58:11-25.1, requires that the municipal or other authority not issue a certification for subdivisions consisting of 50 or more realty improvements until the Department has certified the proposed sewerage facilities and water supply comply with applicable State standards. Therefore, the municipal authority (planning board) would be responsible for determining when a subdivision consists of 50 or more realty improvements.

Q. Would a proposed pool house, with a bathroom, need it's own septic system or could it be tied into the existing septic system for the dwelling? Would such a connection require a TWA?

A. The Department has recommended that auxiliary buildings or uses (pool houses, garages with bathroom, work shops, etc.) which are used solely in conjunction with the single family residence (i.e. not rented as apartment's, or used to operate a business) would be part of the residence, and as such, would not constitute a separate realty improvement. If such auxiliary buildings or uses are rented as apartments or commercial units, or are used as a base of operations for a business, they should be considered separate realty improvements and a TWA from the Department would be required.

Q. Under what circumstances can the installation of seepage pits be approved as an alteration?

A. Under the alteration provisions of 3.3(d) and (e) in the Standards, the main objective of any design is to ensure that the components being altered are in compliance with the provisions of the Standards, or are closer to compliance than the original components prior to alteration. When read literally, this would imply that a seepage pit(s) could only replace another seepage pit(s) or cesspool(s). Under most circumstances, the Department would recommend that this guidance be adhered to, but does not wish to restrict the use of seepage pits for alterations when extenuating circumstances warrant their use. Such circumstances could include, but are not limited to, property size restrictions, distance setback limitations, or other conditions which may preclude the installation of a disposal field for alterations.

Q. Would two (2) dwellings on the same lot, each with their own septic system, need to consolidate into one septic system? Would such a septic system require a TWA?

A. No, two (2) or more realty improvements on a single property, each with a separate septic system, would not require a TWA from the Department. The use of existing individual subsurface sewage disposal systems may be continued without change provided that these systems were located, designed, constructed and installed in accordance with the regulations in effect at the time they were installed and provided that such systems are not malfunctioning. It should be noted, that if the aggregate sanitary sewage flow for the entire property is greater than 2,000 gallons per day, the discharge to ground water would be regulated pursuant to the New Jersey Pollutant Discharge Elimination System Rules, N.J.A.C. 7:14A.

Q. Can a holding tank be allowed on an interim basis until such time as sewers are available for circumstances which don't involve an existing malfunctioning septic system?

A. The Standards, at N.J.A.C. 7:9A-3.12, only authorize the administrative authority to approve the use of a holding tank, as a temporary means of waste disposal, for a period of up to 180 days while an existing individual subsurface sewage disposal system is undergoing an alteration or repair. Use of a holding tank as a permanent means of sewage disposal for sites with malfunctioning individual subsurface sewage disposal systems which cannot be rehabilitated pursuant to N.J.A.C. 7:9A-3.3, would require a TWA from the Department. Before the Department would consider issuing a TWA for a permanent holding tank, it must be demonstrated to the satisfaction of both the administrative authority and the Department that the provisions of N.J.A.C. 7:9A-3.4(d) have been met. Applications for a TWA for a permanent holding tank should be submitted to the Department's Division of Water Quality, Municipal Finance and Construction Element, Bureau of Administration and Management, P.O. Box 029, Trenton, NJ 08625. The interim use of a holding tank could only be approved by the Department under the following condition:

1. Simultaneous or subsequent to the issuance of a Stage II "dry/construct only" treatment works approval by the Department pursuant to N.J.A.C. 7:14A-22.9(b)2, for projects located in sewer ban areas; or
2. To serve a proposed project that is located in a area not presently served by sanitary sewers **and** where a treatment works approval has been issued and a construction contract awarded which contains a scheduled completion date for the construction of the downstream facilities (i.e. sanitary sewer and treatment plants) necessary for the elimination of the holding tank.

For more details on the use of sewage holding tanks, see section 22.13 of the Rules and Regulations Concerning Treatment Works Approvals, Sewer Bans, Sewer Ban Exemptions, at N.J.A.C. 7:14A-22.

Q. When is a NJPDES permit required for a sanitary septic system?

A. On May 5, 1997 NJDEP adopted amendments to the NJPDES regulations. Within this rule adoption, DWQ codified its long-standing policy concerning identification of community onsite subsurface sewage disposal systems. Although the rule no longer uses the term community onsite subsurface sewage disposal system, N.J.A.C. 7:14A-8.1(b)1iv clearly indicates that any one, or multiple subsurface disposal systems on a single property, with an aggregate sanitary wastewater design flow in excess of 2,000 gallons per day (determined in accordance with N.J.A.C. 7:9A-7.4) is subject to the discharge to ground water (DGW) provisions found in subchapter 7 of the NJPDES

regulations. (The NJPDES regulations can be ordered from the West Group, St. Paul Minn @ 1-800-808-WEST or from the Division of Water Quality's World Wide Web Site @ <http://www.state.nj.us/dep/dwq/>).

Subchapter 4 Site Evaluation and System Location:

Q. Please clarify the various distance setbacks in the table at N.J.A.C. 7:9A-4.3.

A. When determining distance setbacks from a disposal field, the edge of the disposal field is considered to be the edge of the gravel envelope for conventional and soil replacement bottom-lined installations, and is the edge of the lateral fill extension for Soil replacement fill-enclosed (2 feet), mounded disposal field (5 feet pressure dosed, 20 feet gravity dosed), and mounded soil replacement disposal field (2 feet) installations.

The distance setback from a disposal field to a water course/surface water body is a minimum of 50 feet. When the water course is tidally influenced, the minimum 50 foot setback should be determined from the mean high tide elevation of the surface water body, provided the high tide conditions do not violate the provisions of N.J.A.C. 7:9A-4.6.

The 50 foot setback to a water course does not apply to a storm sewer which is constructed above the water table into which the septic system is discharging, or which has closed joints. In the Department's original response to comments when the Standards were adopted on August 21, 1989, the Department explained that a storm sewer is considered a water course only when it is constructed below the water table and with open joints.

The minimum 25 foot setback from an occupied building (15 feet with a slab foundation or continuous dust cap) does not apply to a garage (attached or detached), since it is not considered an occupied building since occupied refers to human occupation. This issue was also addressed in the August 21, 1989 response to comments document referenced above.

The 10 foot distance setback to a property line is measured as stated above, from either the gravel envelope or the lateral fill extension, depending upon the type of disposal field installation. The Standards do not address how close the toe of the mounded system may be to a property line, but they do preclude encroachment onto another property pursuant to N.J.A.C. 7:9A-1.8(a)1.

Q. When is a property subject to Surface Flooding pursuant to N.J.A.C. 7:9A-4.6?

A. For the purpose of satisfying the conditions in N.J.A.C. 7:9A-4.6(b)1, the Department has been advising administrative authorities to use the floodwater elevation of the 10 year storm event as the elevation at which a property is subject to surface flooding. The Department has determined that the 10 year storm event is the most conservative storm event for which data is collected on a consistent basis throughout New Jersey. When a property is at an elevation lower than the floodwater elevation of the 10 year storm event, than additional safety measures must be incorporated into the design of the individual subsurface sewage disposal system. Authorization from the Department through a TWA, and the Flood Hazard Area Rules, would also be required.

Q. When is a formal wetlands determination needed when designing a septic system? What constitutes conformance with the requirements of N.J.A.C. 7:9A-4.7?

A. The Standards do not regulate when a formal wetlands determination is required pursuant to the Freshwater Wetlands Protection Act Rules, N.J.A.C. 7:7A-1 et seq. To find out when a formal wetlands determination is required, contact the Land Use Regulation Program at (609) 984-4434. N.J.A.C. 7:9A-4.7 does provide information which may indicate the presence of freshwater wetlands and/or transition areas. When the possible presence of freshwater wetlands and/or transition areas are indicated, any of the information outlined at N.J.A.C. 7:9A-4.7(c) would constitute compliance with the provisions of the Freshwater Wetlands Protection Act Rules.

Q. Clarification on the minimum distance between pressure water service line and building sewer. Ch. 199 requires 5 feet. State plumbing code allows one (1) foot. This discrepancy needs to be resolved.

A. Since Ch. 199 requires a minimum of 5 feet between a building sewer and pressure water service line, the administrative authority must apply the 5 foot setback as required in Ch. 199. Conformance with the more conservative regulations, Ch. 199, will guarantee conformance with both sets of regulations.

The Department will explore standardizing both regulation with the Department of Community Affairs during the next round of amendments to Ch. 199.

Q. With regard to the distance setback between a disposal field and occupied dwelling:

(1) What is considered the outer boundary of an occupied dwelling? And

- (2) On sites which slope away from the occupied building, is the distance setback measured along the sloping ground surface or directly out perpendicular from the occupied building?

A. (1) The outer boundary would be considered the outer-most permanent wall adjacent to the disposal field, regardless of whether that wall is supported by a foundation wall, slab, piles, posts or cantilevered in some fashion. Structures such as decks and patios would not be considered part of the occupied dwelling. However, where the structure of an existing deck becomes the support for a permanent addition to the home, then the distance setback to the disposal field would be measured from the outer-most wall of the addition which is adjacent to the disposal field.

(2) The distance setback itself is measured directly perpendicular from the outermost wall of the occupied building, not along the longer axis of the ground surface on sites where the ground is sloping away from the structure.

Q. What is a lawn drain, storm drain or catch basin and what is the minimum separation distance to a disposal field?

A. The Standards do not define what constitutes a lawn drain, storm drain or catch basin, but does define what constitutes a water course. In the Department's original response to comments when the Standards were adopted on August 21, 1989, the Department explained that a storm sewer is considered a water course only when it is constructed below the water table and with open joints. Applying this logic, as long as components are entirely above the water table or constructed in a manner which precludes ground water seepage, they would not be considered water courses. However, with respect to catch basins, even when they don't qualify as water courses as described above, the Department recommends that consideration be given to their proximity to, and hydraulic impact upon, the functioning of the disposal field.

Subchapter 5

Determination of Soil Suitability:

Q. When is the administrative authority empowered to approve the design of an individual subsurface sewage disposal system in an area which has been disturbed, without the need for a TWA from the Department?

A. In an area which has previously been disturbed, an individual subsurface sewage disposal system design, can be approved by the administrative authority provided conformance with the Standards can be maintained. The determination of soil suitability classification should be determined from either the pre-existing natural ground surface

(when the site has been raised by the addition of fill material) or the existing ground surface (when the site has been lowed by cutting), whichever is lowest. If the depth to limiting zones meets the minimum requirements established in the Standards, and the system design conforms to the Standards, then the administrative authority has sole jurisdiction to approve the design of the individual subsurface sewage disposal system. A TWA would only be required if the minimum depths to limiting zones cannot be maintained due to the disturbance of the ground.

Q. When does a hydraulic head test need to be conducted? How are the results interpreted?

A. A hydraulic head test is conducted to establish the presence, or absence, of a perched or artesian zone of saturation. The relative elevations of the water levels in the piezometers establishes what type of zone of saturation is present. When the water elevations in the deep and shallow piezometer are even, the zone of saturation is regional. Different water elevations in each piezometer indicates either a perched or artesian zone of saturation. If the water level in the deep piezometer is above the elevation of the bottom of the restrictive horizon, the zone of saturation is artesian. If the water level in the deep piezometer is lower than the elevation of the bottom of the restrictive horizon, then the zone of saturation would be perched.

Q. Clarification on the placement of test pits and percolation tests when disposal trenches are proposed.

A. The location of soil profile pits (N.J.A.C. 7:9A-5.2(c)) and percolation tests (N.J.A.C. 7:9A-6.1(e)) would be same for disposal trenches as disposal beds. Since the minimum distance between individual disposal trench sidewalls is six feet, and assuming similar trench lengths, an imaginary line drawn around the perimeter of the disposal area required for the trenches would be treated the same as a disposal bed. Therefore, the location requirements for soil profile pits would be determined as if the disposal trenches were a disposal bed. Soil profile pits would be located within 15 feet of the end of the area which will encompass the disposal trenches. The number of percolation tests would be determined based upon the aggregate square footage of all trenches. The placement would be as specified in Appendix C for the general shape and size of the disposal area required for the trenches.

Q. What methodology does the Department use to determine whether there has been a significant departure from normal climatic conditions in order to lengthen or shorten the wet season?

A. In order to determine whether there has been a significant departure in normal climatic conditions, the Department would perform a statistical comparison of the climatic data for the preceding year against the historic climatological data in order to determine whether there has been a statistically significant departure from the average climatic conditions in the state. The Department does not anticipate ever reducing the duration of the wet season, but could conceivably lengthen the duration of the wet season if warranted.

Q. The Department has stated that soil log conditions which are greater than 15 feet from a disposal field are not limiting to a septic design. How can conditions be limiting in one area, yet not compromise adjacent areas?

A. This statement is not entirely accurate. Site investigation through the excavation of soil profile pits and soil borings accomplishes 2 objectives. Characterization of site conditions immediate to the area of the disposal field for the purpose of identifying soil limiting conditions for design, and overall site assessment to infer regional soil, geologic and hydrogeologic conditions. Site characteristics identified within 15 feet of the disposal field provide reasonably representative field data for system design while allowing site evaluators and designers latitude in locating profile pits during initial field investigations. As per section 7:9A-3.5(c)2ix, soil profile pits, soil borings and permeability tests located beyond 15 foot boundary of the disposal field still need to be reported since this data may give indications to regional conditions which may effect system performance. Examples could be orientation of bedrock as it relates to downslope outcrop or the prevalence of artesian ground water conditions. This data may not preclude the system design, but could provide a reasonable basis to assess the site in greater detail.

Q. Can the Department provide guidance concerning the placement and stability of piezometer A in a hydraulic head test when the top of the hydraulically restrictive horizon is 12 inches or less below the existing ground surface?

A. In order for the hydraulic head test to be considered a valid test, water level readings from both piezometer A and B must be reported. Therefore, piezometer A must be installed even when the top of the hydraulically restrictive horizon is less than 12 inches below the existing ground surface. If the soil horizon to be tested by the shallow piezometer is not deep enough to allow for the adequate placement and stability of the piezometer, the Department would suggest mounding soil in the area that the piezometer is to be placed in order to provide adequate support for the installation of the piezometer.

Q. When conducting a hydraulic head test to determine the presence or absence of an artesian zone of saturation, if the deep piezometer is dry, is an artesian zone of saturation present?

A. When conducting a hydraulic head test, the determination of what type of zone of saturation is present is based upon a comparison between the water levels in the piezometers. If the water levels are the same you have a regional zone of saturation. An artesian zone of saturation would be present when the water levels in the piezometers are different and the water level in the deep piezometer rises above the bottom of the hydraulically restrictive horizon. A perched zone of saturation would be present when the water levels in both piezometers are different and the water level in the deep piezometer doesn't rise above the bottom of the hydraulically restrictive horizon, or if the deep piezometer is dry.

Q. Why does the criteria for identifying the presence of an artesian zone of saturation in section 5.8(f)3 contradict the definition of an artesian zone of saturation in section 2.1? The definition states "a zone of saturation which exists immediately below a hydraulically restrictive horizon, and which has an upper surface which is at a pressure greater than atmospheric, either seasonally or throughout the year" while the criteria in 5.8(f)3 allows zones of unsaturation between the observed water table and the bottom of the restrictive horizon.

A. The diagnostic criteria for identifying the presence of an artesian zone of saturation in section 5.8(f)3 is not a contradiction of the operational definition of an artesian zone of saturation in section 2.1.

As demonstrated throughout subchapter 5, there are in essence 2 levels of detail by which soil limiting zones can be identified. There are determinations based upon observed morphology (e.g. % coarse fragment, soil texture or mottling) and then there are quantitative evaluations (permeability testing or hydraulic head test). As mentioned previously in this document, and as supported in section 5.5(a)2, 5.6(a)3, 5.7(b) and 5.8(d) and (g). This trend clearly indicates that the more detailed and quantitative methods for identifying soil limiting zones supersede conclusions arrived at based upon observed morphology. In the case of the diagnostic criteria in section 5.8(f)3, since this is a morphologic observation, safety factors have been integrated into the interpretation of the data for the purposes of determining the presence of artesian ground water conditions whereas making such a determination using the hydraulic head test allows for direct comparison between observed water levels and the restrictive horizon.

Q. The Department has been frequently asked to elaborate upon the requirements in N.J.A.C. 7:9A-5.8 for determining specific zones of saturation (e.g. regional, perched, artesian and hanging water tables). The following guidance is provided to clarify how to determine the presence of regional, perched and/or artesian zones of saturation when there is a hydraulically restrictive horizon.

A. Based upon the nature of these inquiries, the Department feels that it is necessary to reiterate the general guidance for identifying regional, perched and/or artesian zones of saturation when there is a hydraulically restrictive horizon, which it recently distributed to participating health departments in last July's Ch. 199 Issues Meeting.

The type of zone of saturation which exists at a site is contingent upon where the upper surface of the zone of saturation (determined according to the guidelines in N.J.A.C. 76:9A-5.8(a) and (b)) is located relative to the horizons and strata of the soil profile.

Regional Zone of Saturation exists where:

- 1) The identified zone of saturation is not underlain by hydraulically restrictive soil horizons, hydraulically restrictive substrata or a massive rock substratum; or
- 2) The identified zone of saturation is underlain by hydraulically restrictive soil horizons, hydraulically restrictive substrata or a massive rock substratum conditions exist, but they do not contribute to a perched zone of saturation. In the case of the hydraulically restrictive substrata or a massive rock substratum, these features could exist deep in the profile and be of infinite thickness and as such, the zone of saturation observed above would effectively be a regional zone of saturation.

When it is not clear or there is contention as to the presence of hydraulically restrictive or massive soil or rock conditions, physical test results (e.g. < 0.2 in/hr, greater than 60 min/in or failing basin flooding test) always supersede morphologically based assumptions.

Perched Zones of Saturation exists where:

- 1) The identified zone of saturation is present immediately above a hydraulically restrictive horizon or substrata underlain by a layer of unsaturated soil free of mottling with a chroma of 4 or higher (also refer to the NOTE on hanging water tables); or

- 2) Water is observed ponded above a hydraulically restrictive horizon at the bottom of a soil profile pit but drains away as the pit is excavated below the bottom of the hydraulically restrictive horizon; or
- 3) Water which is observed seeping into a soil profile pit immediately above a hydraulically restrictive horizon, a hydraulically restrictive substratum or massive rock substratum is eliminated by a trench excavated upslope of the soil profile pit; or
- 4) Results of the hydraulic head test indicate the absence of a regional or artesian zone of saturation.

As mentioned above relative to identifying regional zones of saturation, conclusive identification of the hydraulically restrictive horizons or substratum are paramount in making this determination. When doubt exists, conduct the appropriate testing identified in N.J.A.C 7:9A-6.1.

Artesian Zones of Saturation exist where:

- 1) Artesian conditions have been observed in contiguous geologic formations or are known to exist in adjacent areas with similar stratigraphy; or
- 2) Water bearing strata below the hydraulically restrictive horizons are known to be inclined with outcrop areas upslope or at elevations which are higher than the elevation of the project site; or
- 3) Results of a hydraulic head test indicate the presence of an artesian zone of saturation; or
- 4) An adequate unsaturated zone is absent beneath the bottom of the hydraulically restrictive horizon:
 - a) During the months of January through April, static water cannot be within 1 foot of the bottom of the hydraulically restrictive horizon and the horizon or substrata between the static water table and the bottom of the hydraulically restrictive horizon must be free from mottles with a chroma of 4 or higher; or
 - b) During months other than January through April inclusive, static water cannot be within 4 feet of the bottom of the hydraulically restrictive horizon and the horizon or substrata between the static water table and the bottom of the hydraulically restrictive horizon must be free from mottles with a chroma of 4 or higher.

In the case of determining the presence of regional, perched or artesian ground water conditions, the results of the hydraulic head test are always conclusive.

Hanging Zones of Saturation exist where:

If the identified zone of saturation is a function of partially impeded drainage resulting from slower permeable strata overlying more rapidly permeable strata, this condition constitutes a "hanging water" table. This condition does not result in the generation of lateral water movement above the restrictive strata and as such, does not literally exhibit the physical or morphological characteristics of a perched water table as described in section 5.8. Nonetheless, NJDEP does not object to administrative authority's classifying this condition as a perched zone of saturation contingent upon the following:

- 1) That an artesian zone of saturation is not identified as per section 5.8(f) in the underlying strata;
- 2) That the underlying strata is permeable ($K \geq 0.2$ in/hr or perc rate ≤ 60 min/in) which is free of mottling and has a chroma of 4 or higher; and
- 3) That the slope across the disposal field is $< 5\%$ so as to accommodate a SRE installation.

Subchapter 6 Permeability Testing:

Q. What constitutes direct supervision by a licensed professional engineer?

A. It is neither the Standards or Department's intent to define the professional responsibilities of licensed professionals, such as engineers and surveyors. The State Board of Professional Engineers and Land Surveyors Administrative Rules and Regulations defines supervision and responsible charge and as such, the Department has relied upon the professional engineer to ensure that all persons in his/her employment are adequately trained and are performing at the appropriate level of technical competency. The professional engineer will bear the ultimate responsibility for the work which is performed on the behalf of the professional engineer. Because of the complexities of the site topography, soil, geology, etc., it is easy to foresee instances where the administrative authority could reasonably require that the professional engineer be present during the site evaluation. Also, it is reasonable to foresee situations where the technician is not, for any variety of reasons, capable of accurately describing soil properties or properly performing tests which may be required.

Q. The soil permeability class rating test procedure requires the use of a 0.047 millimeter, 300 mesh sieve. However, it has been determined that such a sieve size is not available, what sieve size should be used? Additionally, there are two different adjustment factors at N.J.A.C. 7:9A-6.3(h)2 and 3, if your soil sample meets both criteria, do you adjust your soil permeability class one or two classes?

A. Since the purpose of this step of the soil permeability class rating test is to evaluate the size distribution within the sand fraction, and determine the percentage of sand which is fine and very fine, the Department has determined that the use of a 0.045 millimeter, 325 mesh sieve would be appropriate. Use of this sieve size guarantees retention of all fine and very fine sand with only a small fraction of the upper particle size range of silt being retained.

The soil permeability class rating procedure outlined in section 6.3 was developed based upon the work of Hantzsch, Niekirk and Wistrom (1981). In this body of work, it is recommended that the permeability class of the soil, based upon textural composition determined using the Buoyant Improved Hydrometer Method, be adjusted accordingly for soils with excessive coarse fragment content (25%) or high bulk density (1.7g/cm³). The degree of this adjustment is not detailed though.

In the absence of direct guidance, and considering that: (1) the procedure in section 6.3 can only estimate bulk density as it relates to consistence and structural characteristics in the soil; and (2) that the test is conducted in the absence of any coarse fragment and is a conservative estimate of soil drainage, the Department recommends that the soil permeability class calculated in N.J.A.C. 7:9A-6.3(h) Step One be adjusted by only one soil permeability class.

Q. Step 5ii of the pit-bailing test procedure requires that the calculated value of K_a for successive time intervals be approximately equal. What constitutes approximately equal values of K_a ?

A. The Department has intentionally not defined the term "approximately equal" as it relates the interpreting pit-bailing test results in recognition of the inherent variability associated with field testing. As a measure of guidance, the Department feels that it is reasonable to consider values within one, or adjacent, soil permeability classes as "approximately equal". In cases where permeability values continually fluctuate around design threshold values such as 0.2 in/hr and 20 in/hr, it may be necessary run additional tests until flow conditions in the test equilibrate further and more consistent permeability values can be achieved. Where this cannot be accomplished in a specific test pit, it may be necessary to excavate additional pits until values which can be interpreted can be achieved.

It should be noted, the Department is not discouraging an administrative authority from requiring a specific number of readings within an single permeability class in order to qualify the readings as approximately equal, but the administrative authority should be prepared to justify to the applicant and design engineer their reasoning for requiring a specific number of readings.

Q. What type of excavating equipment is acceptable for performing the basin flood test?

A. Whereas subsection 6.7(e) clearly prohibits the use of the basin flooding test in rock substrata which has been blasted by explosives, excavating equipment such as hydraulic or pneumatic hammers, splitters or chisels used in the excavation of test basins for the performance of the basin flooding test are not prohibited in the Standards.

Q. Has the Department had any success initiating a program for laboratory analysis quality assurance and quality control procedures.

A. NJDEP has encountered little success in facilitating this through existing regulatory programs. Traditionally, NJDEP has certified chemical, rather than physical analytical procedures, through its Office of Laboratory and Quality Assurance. DWQ is recommending that the current rule amendment to the lab certification regulations include provisions for the test procedures mandated in 7:9A. If unsuccessful, DWQ will attempt to pursue other avenues.

Q. Why does there need to be from 6 to 8 feet from the bottom of a basin flood test and the level of infiltration?

A. The requirements for conducting the basin flooding test between 6-8 feet below the level of infiltration is a function of the inherent limitation of the test. The basin flooding test is used to identify the presence, or absence, of a massive rock substratum above the water table. The requirement to perform the basin flooding test between 6-8 feet below the level of infiltration, at a minimum, is to demonstrate whether the fractured rock substrata can adequately serve as the zone of disposal. Because the basin flooding test does not measure permeability, but rather is an empirical pass/fail test, it must be excavated to a depth which is consistent with the zone of disposal.

Q. Is there a maximum depth at which a pit-bail test can be performed?

A. The purpose of the pit-bail test is the identification of hydraulically restrictive horizons or substrata and massive rock substrata below the water table. The Standards, at N.J.A.C. 7:9A-6.5, do not indicate that there is a maximum depth at which a pit-bail test can be performed. However, there are practical limitations on the depth at which a pit-bail test can be performed. The depth of the pit-bail test must be at least 1.5 feet below the observed water level and a minimum of six (6) feet below the proposed level of infiltration while remaining entirely within the horizon or substrata which is being tested.

Subchapter 7 General Design and Construction Requirements:

Q. In addition to those activities explicitly listed in N.J.A.C. 7:9A-7.4(d), what activities has the Department identified as generating sanitary waste?

A. In addition to the activities identified in N.J.A.C. 7:9A-7.4(d), the Department has determined that the discharge from the following types of facilities constitutes sanitary sewage, and as such, can be approved by the administrative authority:

- beauty salons;
- dentist office (with self containing non discharging x-ray equipment); and
- kennels.

This list will be appended as additional facilities are identified by the Department.

Q. Can the Department provide clarification on determining the daily design sewage flow for the following criteria: restaurants and bed and breakfasts. When can actual water use data be used to calculate daily design sewage flow?

A. Regarding the question about calculating design flow for a restaurant, section 7.4 of the standards sets values for daily design flow based upon the maximum number of patrons per day plus the maximum number of employees present during a single day of operation. The number of patrons can be accurately calculated as a function of the number of seats in a restaurant. Considering the design flow criterion for a restaurants in section 23.3 of the Rules and Regulations Governing Treatment Works Approvals, Sewer Bans and Sewer Ban Exemptions, N.J.A.C. 7:14A-22 et seq., which is set in units of 35 gallons per day (GPD) per seat, and the criteria in the Standards set in units of 10 GPD/patron, the Department feels that it is reasonable to assume, that on average, the number of patrons frequenting a restaurant can be determined by dividing the value in the TWA rules by its associated value in the Standards to produce a value

in patrons/day. This value is then in turn multiplied by the criteria in the Standards in the units of GPD/patron to yield the design flow in GPD.

To determine the daily design sewage flow for a bed and breakfast facility use the design criteria for a hotel/motel (130 gal/room/day) is recommended.

It should be noted that an additional 15 gallons per employee per 8 hour shift would need to be incorporated into the daily design sewage flow for all the criteria listed in the Standards with the exception of factory/industrial buildings, office buildings, stores and retail establishments.

The use of other documented criteria, such as flow data, for determining daily design sewage flow is only allowed for facility types which are not identified in N.J.A.C. 7:9A-7.4(d)1-44. Types of alternative information which would be acceptable include actual water use data from similar facilities, design flow criteria from alternative regulations, design flow criteria from other sources with applicable supporting documentation. All alternative data would require the addition of a 50 percent safety factor to the average daily design sewage flow.

Q. Under what circumstances are seepage pits allowed?

A. The Standards, at N.J.A.C. 7:9A-7.6, do not prohibit the use of seepage pits, but do limit their use. For new construction, seepage pits are only allowed for the disposal of greywater (i.e. water from sinks, tubs, washing machines, etc.) from facilities to be served by split blackwater and greywater systems. Seepage pits are allowed in alterations to existing facilities that have either cesspools or seepage pits. Existing seepage pits can remain in use, unchanged, as long as they are functioning properly.

Q. How do you determine the number of patrons in order to calculate design flow for restaurants.

A. Section 7.4 of the standards sets daily design flow based upon the maximum number of patrons per day plus the maximum number of employees present during a single day of operation. The number of patrons can be accurately calculated as a function of the number of seats in a restaurant. Considering the design flow criterion for a restaurant in section 23.3 of the Technical Requirements for Treatment Works Approval Applications, N.J.A.C. 7:14A-23 et seq., which is set at 35 gallons per day (gpd) per seat, and the criteria in section 7.4(d) of 10 gpd/patron, NJDEP feels that it is reasonable to assume, that on average, a restaurant seat will be occupied by 3.5 patrons per day. Consequently, design flow for a restaurant pursuant to the standards can be calculated in part upon the number of seats multiplied by 3.5 patrons per day. An additional 15 gallons per day per 8 hour shift for employees must also be

incorporated into the daily design flow of a restaurant, pursuant to N.J.A.C. 7:9A-7.4(c)2.

Q. Can backwash be discharged into a drywell? If so, would a NJPDES permit or TWA be required?

A. Currently, the Standards prohibit the discharge of water softener backwash into the septic system (see N.J.A.C. 7:9A-7.3(b) & 12.1(b)). The New Jersey Pollutant Discharge Elimination System (NJPDES) Rules, N.J.A.C. 7:14A-1 et seq., authorize the discharge of water softener backwash into a drywell, without the requirement for obtaining either a NJPDES permit of TWA. The design requirements for a drywell can be found at N.J.A.C. 7:14A-8.18.

Additionally, the Department is considering removal of the prohibition of discharging water softener backwash into septic systems when the Standards are readopted in 1999.

Q. Can the Department provide insight on the calculation of the daily design volume of sanitary sewage for dog kennels? Additionally, the State Department of Health has passed new regulations governing dog kennels that require the installation of a septic system. Would the waste from a dog kennel be considered sanitary or industrial waste?

A. The Department does not have a specific recommended criteria for the determination of daily design volume of sanitary sewage for a dog kennel. As with any facility which does not fit a listed criteria at N.J.A.C. 7:9A-7.4(d), it's the responsibility of the design engineer to determine a daily design volume of sanitary sewage, using alternative methods such as actual water use data from similar facilities, that is representative of the proposed use and acceptable to the administrative authority. The waste from a dog kennel, in and of itself, would be considered sanitary waste. However, if the administrative authority has concerns over whether miscellaneous materials, such as dips, cleansers, disinfectants, etc., being used in the daily operations of the dog kennel constitute an industrial waste, the applicant should be instructed to contact the Department for a final determination.

Q. Can the Department clarify the design criteria for the daily design volume of sanitary sewage from deed restricted senior citizen housing. Does the 200 gallon per day minimum only apply to one or two bedrooms and would each additional bedroom require an extra 150 gallons per day design volume?

A. The Standards, at N.J.A.C. 7:9A-7.4(b)1, establishes the minimum daily design volume of sanitary sewage for residential dwellings as 350 gpd, which correlates to a two (2) bedroom dwelling (200 gpd for the first bedroom and 150 gpd for the second bedroom). N.J.A.C. 7:9A-7.4(b)2, allows for the minimum daily design volume of sanitary sewage for deed restricted senior citizen dwelling to be reduced to 200 gpd. The 200 gpd design criteria for deed restricted senior citizen dwellings would be applicable for one (1) and two (2) bedroom dwellings. Deed restricted senior citizen dwelling that have more than two (2) bedrooms would require 150 gpd for each additional bedroom, as required for a conventional dwelling unit.

Q. Can the Department provide guidance concerning the determination of the daily design sewage flow for facilities which don't meet the listed criteria at N.J.A.C. 7:9A-7.4(d)1-44?

A. The determination of daily design sewage flow must be made pursuant to N.J.A.C. 7:9A-7.4(d)1-44 when the facility meets one of the listed criteria. The use of other documented criteria, such as flow data, for determining daily design sewage flow is only allowed for facility types which are not identified in N.J.A.C. 7:9A-7.4(d)1-44. Types of alternative information which would be acceptable include actual water use data from similar facilities with comparative consumptive water uses, design flow criteria from alternative regulations, design flow criteria from other sources with applicable supporting documentation. All alternative data would require the addition of a 50 percent safety factor to the average daily design sewage flow. When evaluating the validity of actual monitored water use data, the following should be taken into consideration:

1. Duration of the monitored water use (was the monitoring period sufficient?);
 2. Monitoring period (did the monitoring period include peak use times?); and
 3. Nature of monitored facility (similar consumptive uses?).
-

Q. Can the Department provide guidance concerning the collection of actual water use data for determining daily design sewage flow?

A. The Standards allow for alternative methods of establishing the daily design sewage flow (such as actual water use data) for facilities which do not fall within one of the categories listed at N.J.A.C. 7:9A-7.4(d). Although not specifically identified in the Standards, when actual water use data (from a facility with similar consumptive uses) is to be used as the basis for determining the daily design sewage flow, the Department would recommend three (3) months of actual flow data, at a minimum, including daily values. From a practical perspective, the flow monitoring should reflect times which

include the peak use and maximum occupancy in order to determine the true expected daily design sewage flow for the proposed facility. The Department has previously, through the New Jersey Pollutant Discharge Elimination System (NJPDDES) permitting program, provided the following references to consider when conducting a flow monitoring program:

- A. "A Guide to Methods and Standards for the Measurement of Water Flow", U.S. Department of Commerce, National Bureau of Standards, NBS Special Publication 421, May 1975, 97 pp. (available from the U.S. Government Printing Office, Washington, D.C. 20402. Order by SD Catalog No. C13.10:421).
- B. "Water Measurement Manual", U.S. Department of the Interior, Bureau of Reclamation, Second Edition, Revised Reprint, 1974, 327 pp. (Available from the U.S. Government Printing Office, Washington, D.C. 20402. Order by Catalog No. 127.19/2, Stock No. S/N 24003-0027).
- C. "Flow Measurement in Open Channels and Closed Conduits", U.S. Department of Commerce, National Bureau of Standards, NSB Special Publication 484, October 1977, 982 pp. (Available in paper copy or microfiche from National Technical Information Service (NTIS), Springfield, VA 22151. Order by NTIS No. PB-273 535/5ST).
- D. "NPDES Compliance Sampling Manual", U.S. Environmental Protection Agency, Office of Water Enforcement, Publication MCD-51, 1977, 140 pp. (Available from General Services Administration (8FFS), Centralized Mailing Lists Services, Building 41, Denver Federal Center, Denver, CO 80225).

Q. What are the regulations concerning the use of waterless toilets? Can a stand alone waterless toilet unit be approved where there will be no water connection of any kind? What requirements are there concerning the disposal of the residual materials?

A. N.J.A.C. 7:9A-7.5 identifies the use of waterless toilets as an alternative for the disposal of blackwater when used in conjunction with a standards septic system for the greywater. Since a waterless toilet is a nonstandard plumbing fixture, a variance from the plumbing subcode must be obtained prior to the approval of the greywater system. The use of a waterless toilet independently, with no greywater component, would not be regulated under the Standards since the facility will not be discharging any sanitary waste.

Q. Is the discharge from a beauty parlor considered industrial waste? Would a New Jersey Pollutant Discharge Elimination System (NJPDDES) and/or Treatment Works

Approval (TWA) permit be required from the Department to discharge beauty parlor waste into a septic system?

A. The Department has determined that the waste from a beauty parlor is not an industrial discharge. Since beauty parlor waste is not industrial, it can be disposed of into an individual subsurface sewage disposal system without prior approval from the Department through either a NJPDES or TWA permit. The Department revised the Standards for Individual Subsurface Sewage Disposal Systems, N.J.A.C. 7:9A-1 et seq., upon readoption in August 1994, to specifically include beauty parlors as a listed design flow criteria at N.J.A.C. 7:9A-7.4(d) thus eliminating the need for a NJPDES and TWA permit.

Subchapter 8 Pretreatment Units:

Q. What is the basis in the Standards for sizing a grease trap and can an internal grease trap be installed instead of a grease trap as required in the Standards?

A. The Department adopted the design criteria for the sizing of grease traps from EPA's Design Manual for Subsurface Disposal Systems. The size of the grease trap is a function of the passive nature of its operation. The grease trap must be large enough to provide adequate retention time of the raw wastewater containing the liquefied grease to allow for the cooling and separation of the grease from the clarified effluent. For facilities which discharge large quantities of grease, a properly sized and maintained grease trap is essential in order to prevent pre-mature failure of the individual subsurface sewage disposal system. The use of an internal grease trap would not replace the grease trap required pursuant to the Standards, and as such could not be approved by the administrative authority.

Q. When can the administrative authority approve the use of an aerobic treatment unit?

A. The administrative authority can approve the use of an aerobic treatment unit under any circumstance when use in conjunction with a standard individual subsurface sewage disposal system. For batch processing aerobic treatment units, the septic tank precedes in series the aerobic treatment unit. For gravity flow, the septic tanks follows in series, the aerobic treatment unit.

Q. Do the septic tank baffles and inspection ports installed in New Jersey have to be schedule 40 PVC?

A. There are no specific requirements in the Standards that mandate septic tank baffles and inspection ports to be constructed from schedule 40 PVC. The Standards only require that septic tank baffles and inspection ports be coated with, or constructed with, materials resistant to corrosion by sulfuric acid.

Q. The Department's January 15, 1998 EIES update states: "NSF does not have any current listings for certification for septic tank outlet devices, including the Zabel Multi-Purpose filter." Is it the Department's position that the Zabel Multi-Purpose filter is not approved for use in the septic tank as an outlet device?

A. The use of products such as the Zabel Multi-Purpose filter are not prohibited pursuant to the Standards provided they are being used in addition to, not in lieu of, the standard requirements for septic tank outlets in the Standards. It should be noted, the Department does not have a program for the approval of specific products, nor does the Department endorse the use of proprietary products.

Q. Can the administrative authority approve the use of a Zabel Multi-purpose Filter in the septic tank to serve as a gas deflection baffle?

A. The Standards, at N.J.A.C. 7:9A-8.2(j)3, allow the use of alternative devices to be used in lieu of a gas deflection baffle provided the device bears the seal of the National Sanitation Foundation (NSF) certifying that the device has been approved by NSF for the specific use proposed and provided that the installation conforms to the manufacturer's recommendations. The Department has contacted NSF inquiring as to whether the Zabel Multi-purpose Filter has been certified for use in septic tanks as a gas deflection device. NSF does not have any current listings for certifications for septic tank outlet devices, including the Zabel Multi-purpose filter. For more information concerning the certification program for such devices you can contact NSF the following ways:

Mail: NSF International
P.O. Box 13040
789 Dixboro Road
Ann Arbor, Michigan 48113-0140

Phone: 734-769-8010 or Toll Free: 1-800-NSF-MARK

Fax: Standards Dept.: 734-769-0109

Internet: <http://www.nsf.org>

E-mail: info@nsf.org

Subchapter 9 Effluent Distribution Networks:

Q. Can the administrative authority approve the design of an individual subsurface sewage disposal system where the disposal field shape is asymmetrical?

A. The Standards do not require that disposal field designs must be symmetrical. The Standards do require that all distribution laterals receive an equal hydraulic loading. It should be noted that even distribution of effluent over the area of a disposal field is an objective of the Standards, rather than a specific requirement. For gravity flow and gravity dosing distribution networks, field symmetry is a greater issue with disposal trenches than an individual disposal bed since the latter will allow for a degree of equilibration. For pressure dosed disposal fields, the design engineer must demonstrate to the satisfaction of the administrative authority, through supplemental hydraulic calculations, that the pressure distribution system will evenly distribute wastewater throughout the disposal field. A reasonable design objective is to limit friction loss within the manifold and distribution laterals to no greater than ten percent.

Q. Since the Standards minimum criteria for straight wall polyethylene pipe (D-1248) is a materials standard rather than a product standard, would straight wall polyethylene pipe, labeled as F-810, be acceptable for use in disposal fields in New Jersey?

A. The Department has determined, in conjunction with the American Society of Testing and Materials (ASTM), and its delegated representatives, that straight wall polyethylene pipe labeled as F-810 is manufactured with materials which meet the minimum required D-1248 specification. Therefore, straight wall polyethylene pipe labeled as F-810 complies with N.J.A.C. 7:9A-9.5(b).

Q. Can a vent pipe be eliminated from a pump tank if proper venting can be established through the building sewer and building roof vent.

A. No. The Standards absolutely require that dosing chambers be exhausted directly through a vent pipe in order to allow the venting of the disposal field.

Q. When is a distribution box required.

A. N.J.A.C. 7:9A-9.4(a) requires a distribution box for all gravity flow and gravity dosing systems where the effluent will be distributed between two or more laterals which are not inter-connected. Gravity flow and gravity dosed systems in which the laterals are inter-connected or looped, or where a manifold is used in conjunction with a pressure dosed system, do not require a distribution box.

Q. Clarification on determining system discharge rate for gravity dosing disposal fields.

A. Since gravity dosing distribution networks do not operate under pressure, as pressure distribution does, the calculation of system discharge rate is not necessary. System discharge rate is important in the design of pressure distribution networks for the calculation of head loss due to friction in the distribution laterals and manifold. Since the laterals in gravity dosing networks will not normally be completely filled with effluent, system discharge rate and friction losses are not a concern.

Q. Clarification on the purpose of inspection ports. When does effluent levels in the inspection ports indicate a malfunctioning septic system.

A. Inspection ports are required in order to provide a method of inspecting the performance of a septic system, without having to excavate the disposal field. Since it is normal for effluent to remain ponded within the gravel filter material of the disposal field for varying time, caution must be taken in concluding when effluent levels in the inspection ports indicate potential problems with the functioning of the disposal system. High effluent levels (above the invert elevation of the laterals), should prompt more vigilant inspection of a septic system for evidence of the conditions identified in N.J.A.C. 7:9A-3.4. In the absence of the conditions identified in section 3.4, NJDEP would not qualify the system as malfunctioning.

Q. Do the septic tank baffles and inspection ports installed in New Jersey have to be schedule 40 PVC?

A. There are no specific requirements in the Standards that mandate septic tank baffles and inspection ports to be constructed from schedule 40 PVC. The Standards only require that septic tank baffles and inspection ports be coated with, or constructed with, materials resistant to corrosion by sulfuric acid.

Subchapter 10 Disposal Fields:

Q. The textural requirements for select fill in N.J.A.C. 7:9A-10.1(f)4 appear to allow excessively coarse material, with a K5 classification greater than 20 in/hr, to be placed within the zone of treatment. Can the administrative authority approve the use of “Bank Run” sand in place of select fill material?

A. When compared with the USDA textural triangle (Figure 6, Appendix A), select fill with between 87-95 percent sand would appear to be excessively coarse, but may not ultimately be classified as such according to N.J.A.C. 7:9A-5.6.

A sample of fill material with 85-95 percent sand will not always have a K5 classification since the soil permeability class rating test has a correction factor incorporated into the test procedure for soil samples with specific structure and consistence characteristics, and for samples where the sand fraction includes greater than 50 percent medium and fine sand (which would be the criteria of concern with a select fill sample). In such cases, the permeability class rating would be adjusted to the next slowest permeability class, which results in a permeability less rapid than 20 inches per hour, and henceforth, would not be considered excessively coarse. In cases where a select fill sample meets the textural requirements of N.J.A.C. 7:9-10.1(f)4, but the results of the permeability class rating test indicates a K5 classification, compliance with N.J.A.C. 7:9A-10.1(d)3 (and N.J.A.C. 7:9A-5.6 also) should be dependent upon the final permeability or percolation rate of the select fill material at the level of infiltration after placement and compaction has occurred. This will almost always result in a permeability rate less rapid than 20 in/hr.

Considering the above, the Department does not expect that “Bank Run” material, which implies a material of alluvial deposition which is high in coarse fragment content, would be able to meet the objectives of section 10.1(f)4 of the Standards, or the subsequent design checks above.

Q. Can the administrative authority approve the use of leach chambers, or would a TWA from the Department be required?

A. Since leach chambers are not identified as an acceptable design option in the Standards, the administrative authority could not approve leach chambers for new construction without a TWA from the Department. The administrative authority could approve the use of leach chambers for alterations to existing individual subsurface sewage disposal systems, without prior Department authorization pursuant to N.J.A.C. 7:9A-3.3(d).

Q. During construction of an individual subsurface sewage disposal system the installer mistakenly excavated deeper than the approved design plans required. Can the removed material be replaced in the excavation, or should the extra depth be backfilled with fill material meeting the specification of N.J.A.C. 7:9A-10.1(f) 5? The design engineer and the installer are concerned over the cost of the fill material, if required.

A. The Standards do not address this issue. The Department doesn't see a problem with replacing the excavated material if it can be replaced in a manner that will not result in a major discontinuity with respect to horizonation, density or permeability in the soil below. If the above concerns cannot be satisfied then the administrative authority could require the placement of fill material, meeting the requirements of N.J.A.C. 7:9A-10.1(f)5, in the excavation.

Q. The Standards requires that the level of infiltration must be a minimum a one foot above or one foot below the existing ground surface. What is the reasoning behind this requirement?

A. In establishing the elevation limitation for the level of infiltration relative to the existing ground surface, the Department was addressing concerns associated with (1) lateral migration of partially treated wastewater through the side wall area for disposal beds and trenches (especially) onto the ground surface resulting from differential permeability at the interface between native soil and backfill, or select fill and backfill; and (2) controlling the placement and compact of fill associated with conventional mounded disposal bed installations.

The Department recognizes that these concerns do not exist for soil replacement fill enclosed (SRE) and mounded soil replacement (MSR) disposal field installations. Since both of these disposal bed installations involve enveloping the gravel envelop with select fill, no potential for lateral migration of partially treated effluent onto the ground surface exists

The Department intends to amend the Standards to allow for the placement of the level of infiltration between one foot above and one foot below existing ground surface for SRE and MSR disposal field installations. In the interim, the Department has committed to the New Jersey State Legislature, that any TWA application received for authorization of the level of infiltration between one foot above and one foot below existing ground surface for either a soil replacement fill enclosed or mounded soil replacement disposal field installation will receive an expedited review.

Q. Can the administrative authority approve an individual subsurface sewage disposal system design with a 2 foot zone of disposal when a hydraulically restrictive substrata is encountered less than 4 feet below the pre-existing natural ground surface?

A. Although Table 10.1, Type of Disposal Field Installation, states that a soil suitability class of IIISr is unsuitable for the installation of an individual subsurface sewage disposal system, N.J.A.C. 7:9A-10.1(e)2 allows for the reduction of the zone of disposal to 2 feet providing the permeability has been determined to be 2 inches per hour or faster. In these circumstances, the provisions of section 10.1(e)2 would dictate, but the Department would encourage the site evaluator and administrative authority to verify that the horizon relied upon for wastewater disposal has lateral continuity and that the massive rock or hydraulically restrictive substrata does not outcrop within the immediate vicinity of the disposal field.

Q. Can a disposal field design option which is not listed as an acceptable installation for a specific suitability class be approved by the administrative authority?

A. Table 10.1, Type of Disposal Field Installation, outlines which type or types of disposal field installations for a specific suitability class identified. When more the one suitability class is present, then the only acceptable design options would be those installations which are permitted for each suitability class. The administrative authority does not have the authority to approve disposal field installations which are not permitted for the suitability class identified in table 10.1. The Department may authorize the installation of an unsuitable disposal field design option through a treatment works approval provided adequate technical justification is provided.

Q. N.J.A.C. 7:9A-10.1(e) allows the zone of disposal to be reduced to 2 feet in thickness when the permeability in the corresponding strata has been determined to be 2.0 in/hr or faster. But, for projects where design permeability within the zone of disposal has been evaluated using the pit-bailing test procedure, the above requirement appears to contradict the conditions of N.J.A.C. 7:9A-10.4(c) which dictates that the depth of excavation for soil replacement fill enclosed disposal field installations corresponds to the bottom of excavation for the pit-bailing test procedure. Does one requirements nullify the other?

A. No. Each requirement is valid and can co-exist in an approvable design provided some preliminary considerations are given to the problem. First, it is necessary to explain the logic behind section 10.1(e) in greater detail as it relates to the mechanics of the pit-bailing test. The pit-bailing test involves excavation of a test pit a minimum of 1.5 feet below the observed water table or 6 feet below the proposed level of infiltration. The water level within the test pit is lowered a minimum of 1 foot and the rate that water

recharges the test pit is recorded as it relates to the rising surface of the water within the test pit. What many individuals misunderstand is that ground water recharges the test pit from the entire saturated area of the excavation, not just within the interval that the water surface has been lowered. Additionally, throughout the entire saturated area of the excavation ground water may not flow homogeneously. As a result, there is no way to distinguish which intervals of the saturated area of the excavation contributed the most, or least, recharge into the final value for permeability measured from the stratum of interest. This phenomena is especially a concern when the test is conducted in fractured sedimentary rock which typically has fewer joints with depth and as such will transmit less ground water. As such, the depth of excavation for soil replacement fill enclosed disposal field installations must correspond to the depth of the bottom of the excavation of the pit-bailing test.

One solution to the problem can be pursued on sites where the observed water table at the time of the pit-bailing test corresponds to the upper surface of the regional zone of saturation. At these sites, depth of excavation of the test pit will naturally accommodate a 2 foot zone of disposal, provided permeability of the strata is 2.0 in/hr or faster once the final value has been re-calculated using the stabilized ground water elevation and the true value for H (depth to impervious stratum).

Q. What is the function of the requirement in the Standards for disposal fields to be aligned parallel to the contours of the ground surface?

A. The requirement to orient the long axis of a disposal field parallel to topographic contours addresses 2 practical design considerations. First, by orienting the longest basal dimension of a disposal field perpendicular to the direction of ground water flow (assuming ground water flow generally follows topography), you maximize hydraulic efficiency by minimizing the ratio of discharge volume to area of ground water flow. Second, orientation of the long axis of the disposal field parallel to topography minimizes the cross sectional profile of the disposal field, reduces the length of backfilling along the downslope of the field and minimizes the potential for seepage downslope of the disposal field.

Q. What is the required depth of the excavation for soil replacement disposal fields?

A. The required depth of excavation depends upon the type of disposal field being installed and the test method used to determine permeability

For soil replacement bottom lined disposal field installations, the depth of the excavation is required by N.J.A.C. 7:9A-10.4(b)1 to extend a minimum of two feet below the bottom of the hydraulically restrictive horizon being removed.

For soil replacement fill enclosed disposal field installations, the depth of the excavation must be determined by the design engineer. In cases where the limiting zone is a fractured rock substratum and a pit-bailing test or basin flooding test has been used to establish adequate permeability, the depth of the excavation is required by N.J.A.C. 7:9A-10.4(c)1 to be no less than the bottom of the test pit.

Q. Is an interceptor drain which discharges to an infiltration pit (ground water recharge basin) instead of a free flowing outlet approvable pursuant to N.J.A.C. 7:9A-10.7? Can the required test of the interceptor drain be conducted outside the wet season? Since the infiltration pit is neither a seepage pit or drywell, is a 50 foot setback to the disposal field required? What are approvable design exceptions for interceptor drain distances and discharge outlets for new construction?

A. Interceptor drains are required to have free-flowing outlets downslope of the drain on each end of the disposal field. The outlets may empty into a surface water body, a drainage swale discharging to a surface water body, a storm sewer, a ground water recharge basin or a gravel bed. If the outlet will not be free-flowing then the interceptor drain is not approvable pursuant to N.J.A.C. 7:9A-10.7. The interceptor drain is required to be tested for satisfactory performance during a time of the year when the perched zone of saturation is expected to be present, regardless of whether it's during the wet season. The absolute minimum separation distance between the interceptor drain and the disposal field is ten (10) feet. N.J.A.C. 7:9A-10.7(d) provides a formula for determining the required separation distance from the interceptor drain to the septic system. There are no specific requirements outlining the separation distance between the interceptor drain outlet and the disposal field.

Q. Can the administrative authority approve a soil replacement disposal field installation, where there were no limiting zones encountered during the site evaluation process, in order to provide a smaller disposal field than required?

A. Table 10.1 outlines what disposal system options are permitted based upon the limiting zones encountered. Where there are no limiting zones encountered during the site evaluation, all five (5) disposal field options are permitted pursuant to Table 10.1. However, there may be limitations on what disposal field may be installed based upon the specific installation requirements for each disposal type. Since the minimum area required for a disposal system is determined based upon the permeability at the level of infiltration, a soil replacement system could very well result in a smaller disposal field than would be required if the minimum disposal area was based upon the permeability of the native soil.

Subchapter 11 Seepage Pits:

Q. Under what circumstances can the installation of seepage pits be approved as an alteration?

A. Under the alteration provisions of 3.3(d) and (e) in the Standards, the main objective of any design is to ensure that the components being altered are in compliance with the provisions of the Standards, or are closer to compliance than the original components prior to alteration. When read literally, this would imply that a seepage pit(s) could only replace another seepage pit(s) or cesspool(s). Under most circumstances, the Department would recommend that this guidance be adhered to, but does not wish to restrict the use of seepage pits for alterations when extenuating circumstances warrant their use. Such circumstances could include, but are not limited to, property size restrictions, distance setback limitations, or other conditions which may preclude the installation of a disposal field for alterations.

Subchapter 12 Operation and Maintenance:

Q. What are the requirements for performing septic system testing, inspections and certifications pursuant to the Standards?

A. The Standards only have provisions for testing existing individual subsurface sewage disposal systems. The Standards, at N.J.A.C. 7:9A-12.7, provide that no individual shall test an individual subsurface sewage disposal system in a manner that will adversely affect the functioning of the system. Hydraulic loading shall not be applied in excess of the design capacity of the septic tank and/or grease trap unless the solids have first been removed from the septic tank and/or grease trap. All testing of an individual subsurface sewage disposal system which requires a hydraulic loading in excess of the systems design flow shall be performed under the supervision of a licensed professional engineer.

Since, inspection and certification of existing individual subsurface sewage disposal systems are not mandated by the Standards, the Department doesn't have specific criteria for testing septic systems nor for licensing or certification of individuals performing such inspections. The Department would support the standardization of septic system testing procedures, as well as specific educational and professional requirements for individuals performing such testing.

Q. What septic system additives are acceptable for use in new Jersey to help keep septic systems functioning properly?

A. Section 17 of the New Jersey Water Pollution Control Act (WPC Act), N.J.S.A. 58:10A prohibits the use, or introduction into the ground waters of the state, of any sewage system cleaner containing any restricted chemical material. A restricted chemical material is defined in section 16 of the WPC Act.

Q. What jurisdiction does the administrative authority have over the disposal of residuals, such as gravel and soil/fill material? Could the gravel and/or soil/fill material be buried on-site?

A. Off-site disposal of septic system residuals at a sanitary landfill is acceptable since the material would be considered an ID-27 waste. On-site reuse (other than abandonment in place) would fall under the provisions of the NJ Solid Waste Management Act. Specifically, the gravel and soil/fill would have to meet the regulatory requirements of "reuse" before they could be used on-site "beneficially". Reviews for beneficial use are conducted pursuant to N.J.A.C. 7:26-1.1(a)1, but unfortunately, NJDEP does not give blanket approvals. Through the beneficial use authorization process, NJDEP directs counties on a case-by-case basis to exempt batches and categories of solid wastes from regulatory control when, and if, they meet NJDEP, Division of Solid and Hazardous Waste beneficial use criteria. Requests for beneficial use determinations should be directed to NJDEP's Division of Solid and Hazardous Waste, Bureau of Technical Assistance at (609) 984-6620.

Q. What is the protocol for septic system testing for failing systems or real estate transactions, including qualifications of the tester evaluating the system.

A. The Standards only have provisions for hydraulic testing of individual subsurface sewage disposal systems. The Standards, at N.J.A.C. 7:9A-12.7, provide that no individual shall test an individual subsurface sewage disposal system in a manner that will adversely affect the functioning of the system. Hydraulic loading shall not be applied in excess of the design capacity of the septic tank and/or grease trap unless the solids have first been removed from the septic tank and/or grease trap. All testing of an individual subsurface sewage disposal system which requires a hydraulic loading in excess of the systems design flow shall be performed under the supervision of a licensed professional engineer.

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performing such inspections. The Department would support the standardization of septic system testing procedures, as well as specific educational and professional requirements for individuals performing such testing.

Q. Can the Department clarify the previous guidance concerning the discharge of water softener backwash into drywells?

A. Currently, the Standards prohibit the discharge of water softener backwash into the septic system (see N.J.A.C. 7:9A-7.3(b) & 12.1(b)). However, the New Jersey Pollutant Discharge Elimination System (NJPDES) Rules, N.J.A.C. 7:14A-1 et seq., identifies the discharge of water softener backwash into a drywell (seepage pit) as an authorized discharge (permit by rule) and therefore, does not require a permit from the Department. The design requirements for a drywell can be found at N.J.A.C. 7:14A-8.18 and they essentially mirror the construction requirements for a seepage pit in CH199.

Additionally, the Department is considering removal of the prohibition of discharging water softener backwash into septic systems when the Standards are readopted in 1999.
